Panasonic

Personal Computer

Reference Manual

CF-47 Series

TOUGHBOOK

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Illustrations in this Reference Manual

NOTE:	**NOTE** provides a useful fact or helpful information.
CAUTION:	**CAUTION** indicates a condition that may result in minor or moderate injury.
WARNING:	**WARNING** indicates a hazard that may result in moderate or serious injury.
[Start]-[Shut Down]:	This illustration means to click [Start], then to click [Shut Down]. (For some applications, you may need to double-click.)
Enter :	This illustration means to press the [Enter] key.
Fn + F5 :	This illustration means to press and hold the [Fn] key, then press the [F5] key.
☞ page:	When the cursor is moved to an item under [Contents] or to ☞ page (green display), the shape of the cursor will change to ☝. Under this condition, if characters are tapped (or a click is made), the corresponding page in the Reference Manual will be displayed.
☞ 📖 :	This illustration means to refer to the Operating Instructions.

We recommend that this Reference Manual be printed.

Key Combinations

CAUTION

- Do not press the following key combinations repeatedly in (quick) succession.
- Do not press the following key combinations while using the touch pad (mouse) or other keys.

Key	Functions		Popup Window
Fn + F2	**LCD brightness control**	Hold down the Fn key and press F2 to change the brightness.	When the brightness is at its maximum value.
Fn + F3	**Display change**	By pressing this key combination, you can select either an external display, LCD or simultaneous, even if an external display is not connected. Powering the computer off and then back on enables the display setting of the Setup Utility. The combination does not work when the computer is in the Dual-Display Mode.	
Fn + F4	**Speakers on/off switch**	Pressing this key combination turns off audio from the internal speakers and headphone jack. Pressing it again, or powering the computer off and then back on enables the speaker setting of the Setup Utility. **CAUTION** When disabling the speakers with this key combination, the warning beep is also disabled.	**OFF** **ON**
Fn + F5 Fn + F6	**Volume control (▼down)** **Volume control (▲up)** **Holding down on the keys changes the sound level.**	Pressing this key combination adjusts the volume of the internal speakers and headphone jack. **NOTE** This key combination cannot be used to adjust the volume of the warning beep.	**Down** **Up**
Fn + F7*	**Power off using the suspend function**	Pressing this key combination causes the current screen on the display to be saved to memory, and powers off the computer. When the computer is powered on again by sliding the power switch or pressing the sleep switch, this save screen will be displayed. (The computer must be plugged into the AC adapter or have a battery pack with sufficient remaining power installed.)	
Fn + F8	**With Windows 98, this key combination is not supported**		
Fn + F9	**Remaining capacity of the battery pack**	Pressing this key combination displays the remaining battery capacity on the screen. page 15	75% **Remaining capacity (%) display** **Battery pack is not installed.**
Fn + F10*	**ECO mode for conserving power**	Pressing this key combination cuts off power to the LCD and turns off the hard disk motor until operation is resumed by pressing any key.	

* When [Disable] is set for [Fn+F7/Fn+F10 key] with the Setup Utility, these key combinations become inoperable.

LED Indicators

	Caps Lock	This indicator lights green when Caps Lock is pressed. Subsequent non-shifted input is capitalized.
	NumLk (Numeric key)	These indicators light green when NumLk is pressed and then Key Pad is pressed while holding down the Fn key. This causes a portion of the keyboard to function as a numeric keypad. The [Enter] key functions differently depending on the application.
	ScrLk (Scroll lock)	This indicator lights green when ScrLk is pressed. Scroll lock functions differently depending on the application.
	KeyPad (Arrow key)	This indicator lights green when Key Pad is pressed while holding down the Fn key. When the indicator is not lit, a portion of the keyboard functions as arrow keys. The [Enter] key functions differently depending on the application.
	CD-ROM status	This indicator lights when the CD-ROM drive is accessed.
	Floppy disk status	This indicator lights when the floppy disk drive is accessed.
	Hard disk status	This indicator lights when the hard disk drive is accessed.
	Battery pack status	**Not lit** : AC adapter not connected or charging not being performed. **Orange** : Charging in progress. **Green** : Charging finished. **Red** : Battery is low (remaining battery capacity is approx. 9% or less). **Flashing red** : Battery pack or charging malfunction. **Flashing orange five times after the AC adapter is connected** : Charging on standby. (The ambient temperature is outside the allowable range. Once the allowable range requirement is satisfied, charging begins automatically.)
	Power status	**Not lit** : Power off **Green** : Power on **Flashing green** : Suspend mode

Drawing Characters or Figures

Simple characters and figures like signatures and arrows can be made by using the work surface of the touch pad, and can be saved to a file as a bitmap (.bmp) format.
Positions on the work surface of the touch pad have corresponding positions in the Panasonic Hand Writing window. For example, a character or figure made in the top-left part of the work surface of the touch pad will be displayed in the top-left part of the Panasonic Hand Writing window.

CAUTION

- To draw, an object with a rounded tip (e.g., a pen for tablets) can be used.
  Do not use any of the following objects, as they may damage the work surface.
  • Objects with an extremely sharp tip, like screwdrivers and nails.
  • Objects that leave marks, like ball-point pens.
- In the Hand Writing mode, an external mouse or trackball connected to the external keyboard/mouse port will not operate. Therefore, before switching over to the Hand Writing mode, remove the external device that is connected. If a switch is made to the Hand Writing mode without disconnecting the external device and the external device stops working, reconnect the device after quitting the Hand Writing mode. If the device still does not work, try restarting the computer.
- If a commercially-available pointing device (e.g., mouse) driver is installed and overwrites the driver of the touch pad, Panasonic Hand Writing will no longer work.

1 Select from the taskbar or select [Panasonic Hand Writing] from [Start] - [Program] - [Panasonic]

2 Change to the Hand Writing mode

The following two methods are available.

- Select from the tool bar.
- Select [Hand writing mode] in [Option].

3 Draw a character or figure using the work surface of the touch pad

NOTE

- **Determine the position to begin drawing:**
  Determine the position to begin drawing while pressing down on the right button of the touch pad. After determining this position, release your finger from the button and draw. Drawing is not possible while the right button of the touch pad is being pressed.
- Data can be copied to the clipboard with [Edit] - [Copy]. Copied data can be added to other applications that support the bitmap format by using the paste function. Pasting is not possible to applications that do not support the bitmap format.

(To next page)

4 Close the Hand Writing mode

Confirm that the [Panasonic Hand Writing] window is active, and then press the left button of the touch pad.

NOTE

In the following cases, the Hand Writing mode is automatically cancelled.
- When a switch is made to another application
- When the computer resumes operation from the suspend or hibernation mode
- When the settings window for [Panasonic Hand Writing] is shown.

5 Select [Save As] or [Save] from [File].

NOTE

- The file size of a bitmap image to be saved or pasted to another application can be changed with [Option] - [Window size].
- The Hand Writing mode does not work when the computer is in the Dual-Display Mode.

Starting Up Your Computer Quickly

If you want to immediately start up and continue an application after shutting down your computer, you can do so by using the suspend or hibernation function.

NOTE

With Windows 98, the "Suspend" is called "Stand by".

● Differences between the suspend and hibernation functions

Function	Suspend function	Hibernation function
Where data is saved to	Memory	Hard disk
Speed	Fast	Somewhat slow
Requires power supply	Yes (if power is cut, all data is lost)	Power is not required to maintain data

Setting the Suspend or Hibernation Function

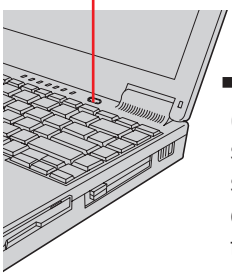
[Hibernation] is factory set.

1. **Run the Setup Utility** (☞ page 33)
2. **Using → and ←, select [Power]**
3. **Using ↑ and ↓, select [Sleep Switch] and press Enter**
4. **Using ↑ and ↓, select [Suspend] or [Hibernation] and press Enter**
5. **Press F10, then select [Yes]**

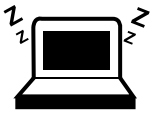
Shutting Down Using the Suspend or Hibernation Function

The computer should be set for suspend or hibernation (☞ see the above procedure).

Press the sleep switch; at the "beep*" sound, release your finger.



(After releasing your finger from the sleep switch, do not touch the sleep switch or the power switch while the computer is in the suspend or hibernation modes.)



Suspend Mode or Hibernation Mode

* When the speaker function is disabled, e.g., by setting [Disable] for [Speaker] with the Setup Utility (☞ page 33) or by the key combination Fn + F4, there will be no beep sound.

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CAUTION

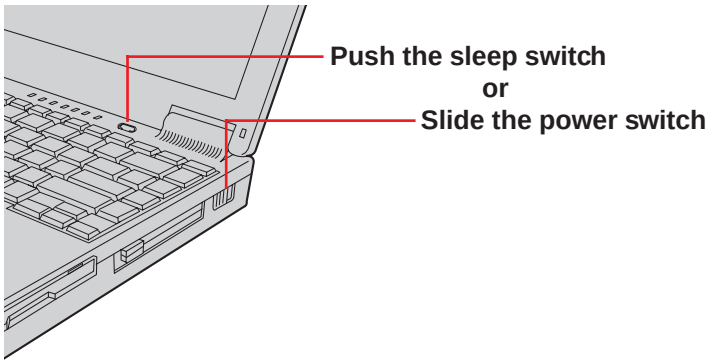
- At the "beep*" sound, release your finger from the sleep switch. If you continue to press down on the switch and hold it for more than four seconds, the "beep*" sound will come out again and the power will go off. Data not previously saved will be lost.
  Slide the power switch to power on. The power will not go on by pressing the sleep switch.
  Even when [Sleep Switch] is set to [No Action] with the Setup Utility, if the sleep switch is pressed, a beep will sound and the power will go off if the button is pressed for more than four seconds.
- If the computer will not be operated for an extended period of time, it is recommended that hibernation mode be used instead of the suspend mode.

NOTE

With the method below, you can shut down the computer by using the suspend function.

- Fn + F7 (☞ page 2)
- In [Start] - [Shut Down], select [Stand by].

Resuming Operation



If the security indicator ( ) is displayed, your password has been set.

CAUTION

- After the display returns, the computer needs a short period of time to reinitialize. This takes about 15 seconds. Do not shut down or restart Windows, or use the suspend or hibernation functions again during this time, as this may subsequently cause Windows to operate abnormally.
- Do not install or remove peripherals while your computer is in the suspend or hibernation mode; abnormal operation may result.
- When operation resumes, serial devices such as a mouse or PC Cards may not function properly. In such cases, you will need to restart your computer or reinitialize the individual devices.

Precautions for Using the Suspend or Hibernation Function

- Save all data before powering off your computer.
- When restarting from or shutting down to the suspend or hibernation mode, do not touch the touch pad (or move the mouse (serial or PS/2 type) if one is connected). These devices may fail to operate, you will then need to restart your computer using the keyboard.
- Do not power off during the following periods (you may corrupt your data or file):
  - While the CD-ROM indicator ( ) or HDD indicator ( ) is on.
  - While playing/recording audio files.
  - While communications software is being used.
- Do not use the suspend or hibernation function when using an operating system other than the one that comes with your computer, the Setup Utility, or when experiencing static electricity or noise.
- If you hold down on the Alt , Ctrl or Shift key to enter the suspend or hibernation mode, after resuming operation, you must press the same key. For example, if you hold down on the Shift key while pushing the sleep switch, upon resuming, if you do not press the Shift key again, only capital letters will result from typing.
- Only when the computer stops operating or locks up should the sleep switch be held more than four seconds to power off the computer. Slide the power switch to power on and data not previously saved will be lost.
- In the suspend mode, power is consumed. If PC Cards are inserted, more of that power is consumed. When all power has been consumed, all data at suspend is lost since it is retained in memory. We therefore recommend plugging in the AC adapter when using the suspend function.
- Repeatedly using the suspend or hibernation function will use up a lot of the system resources and the computer may not work properly. Shut down Windows ([Start]-[Shut Down]) on a regular basis, e.g., about one time a week, without using the suspend or hibernation function. Doing so will restore the system resources.
- Do not use the suspend or hibernation function during the following periods. The suspend or hibernation function, or peripherals may not work.
  - When a file in external devices such as a CD-ROM drive, external hard disk, or ATA card is opened, the suspend or hibernation function may not work. In such cases, close the file.
  - LAN cards, SCSI cards and modem cards etc. may not recover after entering the suspend or hibernation mode. If this occurs, restart the computer.
- When inserting one more CardBus type card with one already inserted, after entering the suspend or hibernation mode, the computer may not function properly.
- When a USB device is connected, there are cases the suspend or hibernation function will not operate in a normal manner due to the USB device. In addition, a USB device may have to be removed temporarily and the computer restarted in cases where the computer is unable to start up properly.
- When both [Turn off monitor] (in [Control Panel] – [Power Management] – [Power Schemes]) and [Screen Saver] (in [Control Panel] – [Display] – [Screen Saver]) are set, there are cases operations cannot resume in a normal manner from the suspend or hibernation mode.
- When the screensaver setting is active, do not enter the suspend or hibernation mode while the MS-DOS Prompt is being displayed. There are cases operations cannot resume in a normal manner.

Security Measures

To prevent unauthorized access of your computer, the various security measures are provided below.

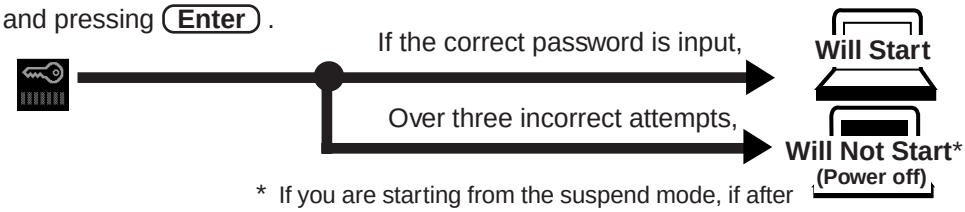
Situation	Function to use	Reference
You do not want your computer to be used without permission	Supervisor Password User Password	☞ below
Same as above, but while you're away temporarily	Coffee Break Password	☞ page 12
You want to prevent theft or damage to data by using a floppy disk	Prevent operation by using a floppy disk	☞ page 13
You want to prevent theft of your computer	Use security locks	☞ "Names and Functions of Parts"

When you do not want your computer to be used without permission

You should set your "Supervisor Password" and "User Password" (The User Password can only be set when the Supervisor Password has been set).
Without the password, access to your computer is impossible.

● Starting up when the password is set

Upon entering your Supervisor Password or User Password and pressing Enter .



* If you are starting from the suspend mode, if after three attempts the correct password is not input, or if no password is entered for about a minute, the computer returns to the suspend mode.

● If entering the Setup Utility with Supervisor Password

You can register all items of the Setup Utility (☞ page 33).

● If entering the Setup Utility with User Password

- You can not register [Advanced] menu and some items in [Security] menu.
- When [User Password Protection] has been set to [Protected], you can not register the User Password.
- F9 does not work.

Setting the Supervisor Password (enabling, changing, disabling)

NOTE

When the User Password is set, the Supervisor Password will be needed. (☞ page 11)

1 **Run the Setup Utility** (☞ page 33)

2 **Using → and ←, select [Security]**

3 **Using ↑ and ↓, select [Set Supervisor Password], then press Enter**

4 **<Only when the Supervisor Password has been set>**
Enter your password at the [Enter Current Password], then press Enter

5 **Enter your password at the [Enter New Password], then press Enter**

● To disable the Supervisor Password

Press only Enter

6 **Re-enter your password at the [Confirm New Password] , then press Enter**

● To disable the Supervisor Password

Press only Enter

7 **At the [Setup Notice], press Enter**

8 **Press F10, then select [Yes]**

CAUTION

- Your password will not be displayed on the screen.
- Please limit your password to seven characters. Note that there is no distinction between upper and lower case letters.
- White colored keys can be used. Note that the space bar and function keys cannot be used.
- Do not input your password while holding down on Shift or Ctrl .
- Use only the upper horizontal row of numeric keys to input your password.
- Do not forget your password. If a password is forgotten you will be unable to use your computer. Please contact Panasonic Technical Support.
- When running the Setup Utility, do not leave your computer even for a short time.

NOTE

When you do not want the User Password enabled, changed, or disabled without permission:

1 Using ↑ and ↓, select [User Password Protection] and press Ente

2 Using ↑ and ↓, select [Protected] and press Enter.

Setting the User Password (enabling, changing, disabling)

1 **Run the Setup Utility** (☞ page 33)

NOTE

When the Supervisor Password has not been set, the User Password can not be set.
Set the Supervisor Password if you have not done so. (☞ page 10)

2 **Using → and ←, select [Security]**

3 **Using ↑ and ↓, select [Set User Password], then press Enter**

4 **<Only when the User Password has been set>**
Enter your password at the [Enter Current Password], then press Enter

5 **Enter your password at the [Enter New Password], then press Enter**

● To disable the User Password

Press only Enter

6 **Re-enter your password at the [Confirm New Password] , then press Enter**

● To disable the User Password

Press only Enter

7 **At the [Setup Notice], press Enter**

8 **Press F10, then select [Yes]**

CAUTION

- Your password will not be displayed on the screen.
- Please limit your password to seven characters. Note that there is no distinction between upper and lower case letters.
- White colored keys can be used. Note that the space bar and function keys cannot be used.
- Do not input your password while holding down on Shift or Ctrl.
- Use only the upper horizontal row of numeric keys to input your password.
- Do not forget your password. If a password is forgotten, you will be unable to use your computer. Please contact Panasonic Technical Support.

To prevent the changing of your password without permission

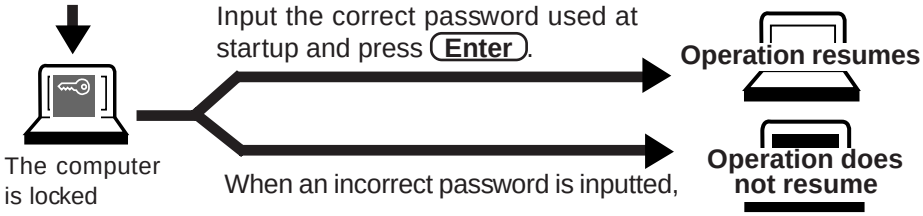
- When running the Setup Utility, do not leave your computer even for a short time.
- Set the User Password Protection option (☞ page 9).

When you do not want your computer to be used without permission while away temporarily

You should set the “Coffee Break Password” (Note that you must first set the User Password). When you input your selected key combination, the computer locks (key input, use of the touch pad and use of an external mouse are no longer possible).

●When the Coffee Break Password is set

When leaving your desk
Alt + Ctrl + F9 (Example of a selected key combination)


Input the correct password used at startup and press Enter.
Operation resumes
The computer is locked
When an incorrect password is inputted,
Operation does not resume

Setting the Coffee Break Password (enabling or disabling)

1 **Set the User Password** (☞ page 11)

2 **Using ↑ and ↓, select [Coffee Break Password] and press Enter**

3 **Using ↑ and ↓, select your combination of keys and press Enter**

●To disable the Coffee Break Password

Using ↑ and ↓, select [Disable] and press Enter

4 **Press F10, then select [Yes]**

CAUTION

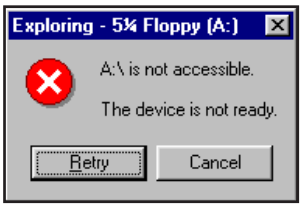
Only the computer's keyboard, touch pad, or a keyboard or mouse connected to the PS/2 port can be locked by the Coffee Break Password.

Preventing theft or damage to data using a floppy disk

You may choose to protect the data on your computer from being accessed illegally or overwritten accidentally by using a floppy disk. You can also set your computer to be unbootable from a floppy disk.

● Preventing the use of a floppy disk

This error message is displayed when access to the floppy disk drive is attempted.



Procedure

1. **Run the Setup Utility** (☞ page 33)
2. **Using → and ←, select [Security]**
3. **Using ↑ and ↓, select [Boot Up Drive] and press Enter**
4. **Using ↑ and ↓, select either [C:] or [CDD / A: / C:] and press Enter**
5. **Using the ↑ and ↓, select [Floppy Operation] and press Enter**
6. **Using ↑ and ↓, select [Disable] and press Enter**
7. **Press F10, then select [Yes]**

Conserving Power

One of the main features of notebook-type computers is that you have the power of computing away from your home or office. In the following, information is provided on how to maximize use of the battery pack which is necessary for such computing.

● Four Important Points

POINT 1 Be sure to charge your battery before and after use.

POINT 2 To get the maximum use of your battery, set the power management mode.

POINT 3 Check to see that you have your AC adapter with you before leaving your home or office.
Purchasing a spare battery (CF-VZSU09) and the optional battery charger* is highly recommended.
* for U.S.A. and Canada: CF-VCB252 (with AC adapter)
for Europe: CF-VCB251A

POINT 4 Always watch your battery level!

Things to Remember

● **Leave your computer off when it is not in use**
(☞ 📖 "Starting Up/Shutting Down")

● **Adjust the brightness (dark) with Fn + F2**
By repeatedly pressing the keys to maximize the brightness (☼ will be displayed), following this, if the keys are pressed again, the brightness will be minimized, thereby lowering the power consumption.

● **Before stepping away from your computer, press Fn + F10 to put your computer in the ECO mode**
The ECO mode helps you conserve power by cutting off power to the LCD and turning off the hard disk motor. To resume, you may press any key.

● **In [Control Panel] - [Power Management], make settings in detail**
By making settings in detail for the alarm, timeout, etc., it is possible to control the consumption of power.
When Windows 98 is starting up, the individual timeout functions of the Setup Utility will not work.

CAUTION

When installed in a network environment.
Be sure to disable the "System standby" settings with the [Control Panel] - [Power Management].
After resuming operation from the suspend mode, the network connection may be severed or the computer will not work properly.

When a device like a high-speed modem (including an internal modem) or ISDN terminal adapter is connected to the serial port, etc.
There are times when high-speed communication is adversely affected if the power management function is enabled.

Key operation and music playback.
When the power management function is running, you may feel that key or touch pad (or mouse) operations are sluggish. Furthermore, music may not be played back correctly when entering the ECO mode during playback.

Battery Status

Use the Battery Indicator to Check on the Battery Status

Battery Indicator	Battery Status
Orange*	Charging
Green*	Fully-charged
Red	Battery charge is low (the charge is less than approx. 9% capacity)
Blinking red*	Battery pack or charger may not be working properly. Quickly remove the battery pack and disconnect the AC adapter, then connect them again. If the problem persists, contact Panasonic Technical Support.
Blinking orange five times after the AC adapter is connected*	Unable to recharge due to violation of temperature limits. (The ambient temperature is outside the allowable range. Once the allowable range requirement is satisfied, charging begins automatically.)
Not lit	Battery pack is not connected or charging not being performed.

* When the AC adapter is connected.

NOTE

This computer prevents overcharging of the battery by recharging only when the remaining power is less than approx. 95% of capacity after the battery is fully charged.

● Getting a detailed reading

Fn + F9 →

NOTE

● The actual remaining battery capacity and the displayed indication may differ.

• The battery indicator light remains red. • The battery remaining displays 99% and the indicator light is orange for a long period of time.	→ Charge the battery until the indicator is green, then completely discharge the battery.
Low battery warning appears after a short period of time. This may be caused by the use of suspend mode for long periods of time. The battery is discharging while the computer is in suspend mode when the AC adapter is not connected.	→ Completely discharge the battery (reaches 0%).

● When the battery pack is not in the computer, is displayed.

When the Remaining Battery Charge Becomes Low

save your data and power off your computer
Following that:

- Plug in the AC adapter, and fully charge your battery.
- Use a spare battery if you have one.
- If you have neither the AC adapter nor an extra battery, shut down the computer.

If the suspend or hibernation function is set

Red indicator lights
Beep sounds*1*2
(at approx. 9% capacity*2)

Suspend Mode or Hibernation Mode
(at approx. 4% capacity*2)

If the suspend or hibernation function is not set

Red indicator lights
(at approx. 9% capacity*2)

Beep sounds*1*2
(at approx. 4% capacity*2)

Computer goes off
(at approx. 0% capacity*2)

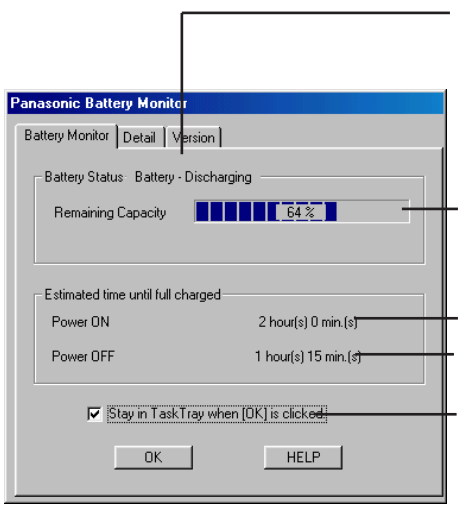
*1 When disabling the speakers with the Setup Utility (or pressing Fn + F4), the warning beep is also disabled.

*2 When the settings in [Control Panel] - [Power Management] begin to result in a better power saving efficiency, those settings (Windows settings) should take precedence.

Panasonic Battery Monitor

It is possible to display the current battery status and the remaining battery power by running the Panasonic Battery Monitor.

1 Select from the taskbar



Battery Status
AC: AC adapter connected (fully charged)
AC-Charging: AC adapter connected (charging)
Battery-Discharging: No AC adapter (discharging)

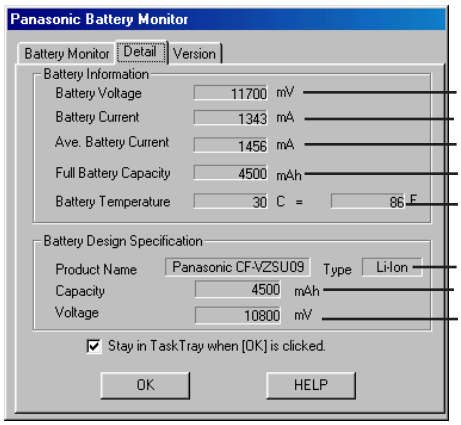
Remaining battery power

Estimated time until fully charged during Power On

Estimated time until fully charged during Power Off

This program will be closed after removing the check mark, then clicking [OK]

2 Click [Detail]



Battery voltage
Battery current
Average current for the most recent one minute
Battery capacity (fully charged)
Battery temperature(degree)

Battery type
Battery capacity (specified)
Battery voltage (specified)

NOTE

- The deviations for the estimated time can occur depending on the condition of the battery.
- There are cases [0] (indicating a full charge) may be shown for the [Estimated Time until fully charged] even if the remaining battery power is about 97% (e.g., when un-plugging then plugging the AC adapter above 95%).
- When the Panasonic Battery Monitor is being displayed, the System standby (Suspend timeout function, [Power Schemes] in [Control Panel] - [Power Management]) will not work.

Accurately Displaying Battery Capacity

The battery pack has a function for measuring, storing, and learning about battery capacity. Using this function properly to accurately display remaining battery capacity requires that the battery pack be fully charged (charged to 100%), then fully discharged, and then fully charged again.
Use the procedure presented below to fully charge the battery pack, then discharge it, then charge it again. This procedure should be performed once after you purchase the computer. As you use the battery pack over a long period of time, the remaining capacity display may become inaccurate due to aging of the battery pack and other factors. The procedure described below should be repeated.

1 Attach the battery pack, then connect the AC adapter

Remove all peripherals (except for the battery pack and AC adapter).

2 Once the battery indicator turns green, use the Battery Capacity refresh utility to fully discharge the battery pack

1 Choose [Start]-[Shut Down]-[Restart in MS-DOS mode], and then click [OK].
2 Type the following after the MS-DOS prompt (C:\WINDOWS>).

c:\panaapp\batcheck\battref /G Enter

3 At the confirmation message, press Y .

The battery indicator blinks orange, the battery pack will be discharged fully and the computer will power off automatically.

CAUTION

When the above operation is performed, do not turn the computer off.
Doing so will make it impossible to measure the battery capacity.

NOTE

When the Battery Capacity refresh utility starts, it will take approximately 2.5 hours until the computer powers off automatically.

3 Charge the battery pack until the battery indicator turns green (full charge)

(Charging commences automatically.)

Replacing the Battery Pack

When the charge provided by your battery pack is supplied for only a short period of time, even after fully charging according to the instructions, it may be time to replace your battery pack. The battery pack is a consumable item and therefore will require replacement (CF-VZSU09).

CAUTION

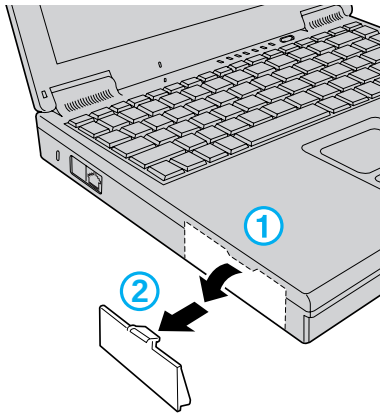
- Do not touch the terminals on the battery pack. The battery pack may no longer function properly if the contacts are dirty or damaged.
- The battery pack is not charged when the computer is first purchased. Be sure to charge it before using it for the first time. When the AC adapter is connected to the computer, charging begins automatically.
- Use only the specified battery pack (CF-VZSU09) with your computer.

1 Power off your computer (☞ "Starting Up/Shutting Down")

Do not shut down using the suspend mode.

CAUTION

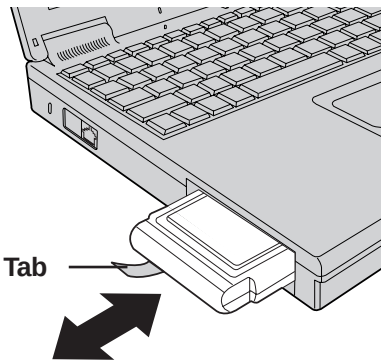
In the suspend mode, do not remove/change the battery pack. Removing the pack in the suspend mode will erase your data and may damage the computer.



2 Remove the outside cover for the battery pack

3 ● Taking out the battery pack

Pull the tab on the battery pack and remove it from the computer.



● Inserting a battery pack

Firmly attach the battery pack to the connector.

CAUTION

Be sure the battery pack is properly connected to the connector.

4 Reattach the outside cover

CAUTION

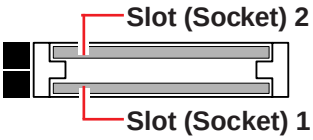
For an improperly attached cover, your battery pack may fall out while you are carrying around your computer.

PC Card

Your computer has two PC Card slots. These slots conform to the PC Card Standard; therefore, communications or SCSI devices, etc., may be utilized. The slots allow you to use two Type I or Type II cards (or one Type I and one Type II), or one Type III card.

● Type I or II

Two cards can be used simultaneously.



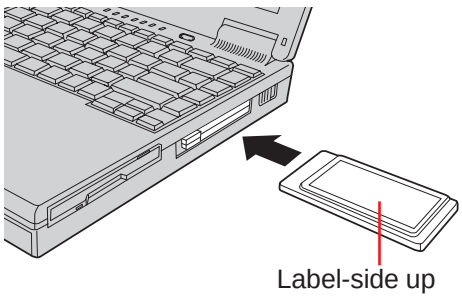
● Type III

One card can be used only in the slot 1.

CAUTION

- Please check the PC Cards' specifications. Be sure the total operating current does not exceed the specified limit. Damage may result otherwise.
  Allowable Current (total for two slots) : 3.3 V: 400 mA, 5 V: 400 mA, 12 V: 120 mA
- There are times when both a Type I card and a Type II card will not work at the same time.
- SRAM and FLASH ROM (except for an ATA interface) cards are not supported.
- Do not use a CardBus type card and a non-CardBus type card at the same time.
- For the following cases, be sure the power has been turned off before proceeding.
  - When removing a network card
  - When replacing a CardBus type card with another card (including another CardBus type card)
  - When inserting one more CardBus type card with one already inserted
- When inserting one more CardBus type card with one already inserted, after entering the suspend or hibernation mode, the computer may not function properly.

Installing/Removing the PC Card

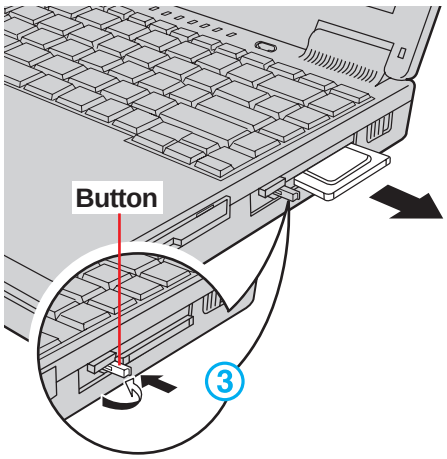


● Installing a PC Card

Gently push the PC Card all the way into the PC card slot.
Please refer to the manual for each card on how to install the card (insertion is typically label-side up).

CAUTION

When inserting a card, do not force the card in if difficulty is encountered. You may damage the slot, making it impossible to remove the card.



● Removing a PC Card

CAUTION

Do not remove a PC Card while your computer is in the suspend or hibernation mode.

① Go to [Socket Status] (in [Start] - [Settings] - [Control Panel] - [PC Card (PCMCIA)]), select the PC Card slot and press [Stop].
(When removing a PC Card after turning off the computer, this step ① is not need.)

② Pull the button out and press it.

③ Slide the PC Card out.

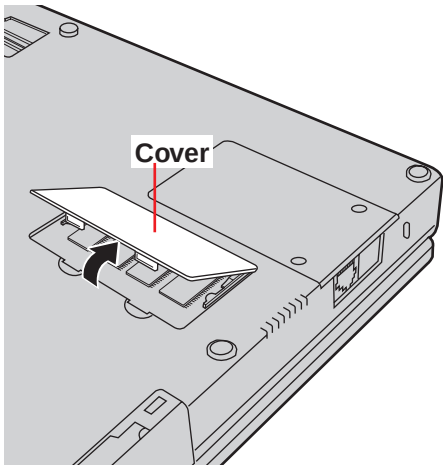
Adding Memory

RAM Module

CAUTION

- Use a RAM module meeting the RAM module specifications below. If a module is used that does not meet the specifications, there are cases in which data may become unusable or the computer may not operate properly.
- RAM modules are extremely sensitive to static electricity. There are cases where static electricity generated by the human body has adversely affected such modules. In addition, it is easy to damage the RAM modules or internal components of the computer. Therefore, when installing or removing a RAM module, handle the module with extreme care.

Installing/Removing the RAM Module



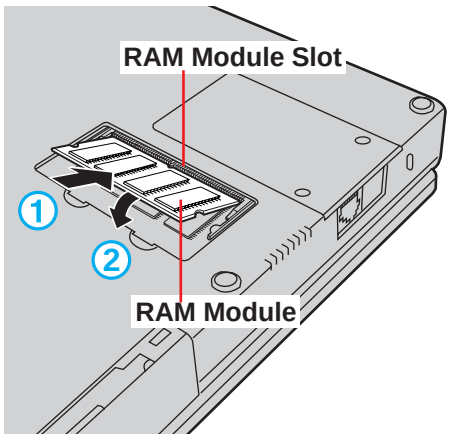
1 **Power off your computer** (☞ "Starting Up/Shutting Down")

Do not shut down using the suspend or hibernation mode.

2 **Turn the computer over and Remove the memory cover**

CAUTION

Do not touch the terminals or internal components, insert objects other than the module, or allow foreign particles to enter. Doing so has been known to cause damage, fire or electric shock.



3 ● **Installing the RAM module**

① Slide in the module at an angle.

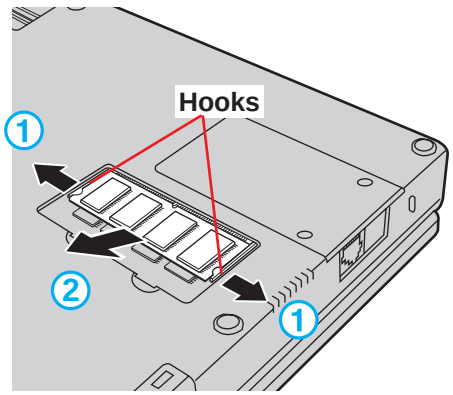
② Snap the module into place by pushing down on it.

RAM module specifications
144 pins, SO-DIMM, 3.3 V, SDRAM

● **Removing the RAM module**

① Open the left and right hooks.

② Gently remove the RAM module from the slot.



4 **Put the cover back into place**

Port Replicator

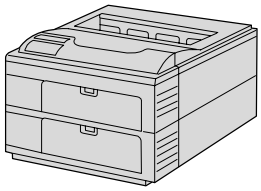
A port replicator is available as an option (CF-VEB471). This device eliminates the hassles of having you connect/disconnect the various cables when carrying your computer around and allows a variety of peripherals to be connected including a headphone or microphone, etc.

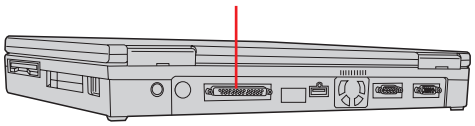
The port replicator connects to the expansion bus connector on the bottom of your computer.
For more detailed information, please refer to the operation manual of the port replicator.

NOTE

When connecting the external display to the display port on the port replicator, the characters on the external display may be blurred if 1280 x 1024 resolution is selected.
In this case, select the resolution except 1280 x 1024.

Using a Printer





1 **Power off your computer** (☞ "Starting Up/Shutting Down")

Do not shut down using the suspend or hibernation mode.

2 **Connect the printer to your computer**

3 **Turn on the printer, then turn on your computer with the LCD panel opened**

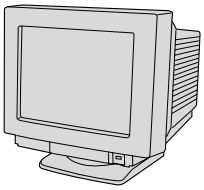
4 **Setting your printer**

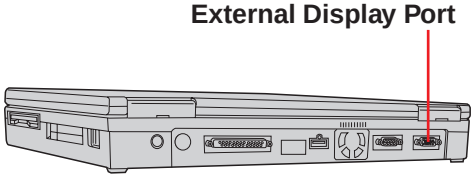
Go to [My Computer] - [Printers]. Find your printer's icon, double-click on it, and click [File] - [Set As Default]. If no icon is available, select [Add Printer] and then follow the on-screen instructions.

NOTE

- You may need to install a driver for your printer. Simply follow the on-screen instructions and refer to the operation manual of the printer on how to install the driver.
- Confirm whether or not the setting for the Parallel Port in the Setup Utility is optimal

Using an External Display





1 **Power off your computer** (☞ "Starting Up/Shutting Down")

Do not shut down using the suspend or hibernation mode.

2 **Connect the external display to your computer**

NOTE

For more detailed information, please refer to the operation manual of the external display.

3 **Turn on the external display, then turn on your computer with the display opened**

You can select either an external display, LCD or simultaneous with Fn + F3 .

In addition, you can set the display to use during start-up with the following procedure.

1 **Run the Setup Utility** (☞ page 33)

2 **Using → and ←, select [Main]**

3 **Using ↑ and ↓, select [Display] and press Enter**

4 **Using ↑ and ↓, select the display to use and press Enter**

5 **Press F10, then select [Yes]**

6 **Select your external display**

Set your external display for [Monitor] in [Start] - [Settings] - [Control Panel] - [Display] - [Settings] - [Advanced].

When a monitor that does not conform to the Plug & Play standards is connected, select [Change] and make the monitor settings.

Using Dual-Display Mode

When an external display is connected, it is possible to use both the LCD of the computer (i.e., internal LCD) and the external display as an extended display domain with the Dual Display Mode.
It is possible to drag a window from the internal LCD to the external display.

Setting Dual-Display Mode

1 **In [Start] - [Settings] - [Control Panel], select [Display]**

2 **Add the check mark ✓ for [Set Dual-Display] in [Settings] - [Advanced] - [NeoMagic]**

3 **Restart the computer**
The display ask you to restart the computer, press [Yes].

4 **Set the Screen area and Colors**
This step is to set the screen area and colors for the internal LCD and external display. The internal LCD and external display are each assigned a monitor number ([1] or [2]). For the internal LCD [1] and external display [2], click on each of them to set the screen area and colors. Refer to page 26 for information on the possible values that can be set.

To confirm the monitor numbers:
By clicking and holding down on the monitor icon in the Display Properties dialog box, the monitor number corresponding to the icon will be displayed.

5 **Set the Position of the Extension Display (External Display [2])**
Drag and drop the monitor icon of the external display [2]. Operations will be facilitated when the monitor number matches the actual arrangement position of the external display.

6 **Select [OK]**

NOTE

- Depending on the software application, there are some applications (Panasonic Hand Writing etc.) that cannot be used in the Dual-Display Mode.
- When the button to maximize a window is pressed, one of the displays will show the maximized display.
- A window that has been maximized cannot be moved to the other display.

(To next page)

CAUTION

- When the application running is not shown on the display, please refer to the following items.
  (Under the condition the application is in the external display (external display [2]), or after the application is closed in the external display, there are cases the application will not be shown in the display when executed the next time if the Position of the Extension Display is changed or the Dual-Display Mode is closed.)

  When there is no display after the Position of the Extension Display is changed:
  The application running is being displayed at the Position of the Extension Display before the change. Return the Position of the Extension Display to the condition before the change once, move the application to the internal LCD (internal LCD [1]), and then correct the Position of the Extension Display.

  When there is no display when the Dual Display Mode is disabled:
  The application running is being displayed in the external display (external display [2]). Set the Dual Display Mode again, move the application from the external display (external display [2]) to the internal LCD (internal LCD [1]) and then disable the Dual Display Mode.

- When the Dual Display Mode is used, set [Never] for [Plugged in] and [Running batteries] for [Turn off monitor] in [Control Panel] - [Power Management] - [Power Schemes]. If this setting is not made, there are cases the display will not be shown properly.
- To prevent images from being burned onto the external display, manually shut off the power to the external display when the display does not have to be used.
- When the display domain for the Dual Display Mode is changed, there are cases the wallpaper, icons and channel bar become displaced.
  Wallpaper: Change the setting for the wallpaper.
  Icons: Run the command to automatically realign the icons. (Auto Arrange)
  Channel bar: Select [WEB] in the Display Properties dialog box, and execute [Reset All].
- When an animated pointer is used for the mouse pointer (e.g., when changing the theme in [Desktop Theme] of the [Control Panel]), an error may occur when resuming from the suspend or hibernation mode. In such cases, change the mouse pointer to the standard pointer with the following procedure.
  1 In [Control Panel], select [Mouse] and then select [Pointers].
  2 Select [Windows Standard] in [Scheme] and then press [OK].

(To next page)

Possible Screen area and Color Settings in the Dual-Display Mode

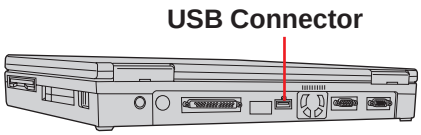
Internal LCD		External Display		
		256 Colors		
		640 x 480	800 x 600	1024 x 768
640 x 480	256 Colors	OK	OK	OK
640 x 480	High Color (16 bit)	OK	OK	OK
640 x 480	True Color (24 bit)	OK	OK	OK
800 x 600	256 Colors	OK	OK	OK
800 x 600	High Color (16 bit)	OK	OK	OK
800 x 600	True Color (24 bit)	OK	OK	OK
1024 x 768	256 Colors	OK	OK	OK
1024 x 768	High Color (16 bit)	OK	OK	OK
1280 x 1024*	256 Colors	OK	OK	OK

* 1024 x 768 is displayed for the LCD.

Internal LCD		External Display		
		High Color (16 bit)		
		640 x 480	800 x 600	1024 x 768
640 x 480	256 Colors*1	—	—	—
640 x 480	High Color (16 bit)	OK	OK	OK
640 x 480	True Color (24 bit)	OK	OK	OK
800 x 600	256 Colors*1	—	—	—
800 x 600	High Color (16 bit)	OK	OK	—*2
800 x 600	True Color (24 bit)	OK	OK	—
1024 x 768	256 Colors*1	—	—	—
1024 x 768	High Color (16 bit)	OK	—*2	—

*1 Can be selected, but the color setting for the external display will be 256 colors.
*2 Can be selected, but we recommend not using this mode.

Using USB Devices



CAUTION

Do not install or remove peripherals while your computer is in the suspend or hibernation mode; abnormal operation may result.

Connect the USB device to your computer

NOTE

For more detailed information, please refer to the operation manual of the USB device.

CAUTION

- When a USB device is connected, there are cases the suspend or hibernation function will not operate in a normal manner due to the USB device. In addition, a USB device may have to be removed temporarily and the computer restarted in cases where the computer is unable to start up properly.
- You may need to install a driver for your USB devices (for Windows 98). Simply follow the on-screen instructions and refer to the operation manual for USB devices on how to install the driver.

Infrared Data Communications

Your computer is equipped with an infrared communications port enabling you to transfer data without a cable.

Preparations for Infrared Data Communications

- Set the address of your infrared communications port to enable. (☞ below)
- Position your computer so that the port is face-to-face with the port of another computer.
- Be sure the computers are not in direct contact with one another.
- A port-to-port distance of 20 to 50 cm (8 to 20 inches) is recommended.

Problems with infrared data communications

- An object is located between both ports.
- There are other electronic devices nearby causing interference, such as a television, VCR, wireless headphone, etc.
- Direct sunlight or white glowing light, such as fluorescent lighting; can cause interference with communications between the ports.
- When moving your computer while it is transmitting/receiving data.

Setting for Infrared Data Communications

1. **Run the Setup Utility** (☞ page 33)
2. **Using → and ←, select [Advanced]**
3. **Using ↑ and ↓, select [IrDA Port] and press Enter**
4. **Using ↑ and ↓, select [2F8/IRQ3/DMA3] and press Enter**
5. **Press F10, then select [Yes]**
6. **In [Start] - [Settings] - [Control Panel], select [Infrared]**
7. **Add the check mark for [Enable infrared communications] in [Options] and then [OK]**

Data Communications

NOTE

Be sure to enable the use of the Infrared Communication Port in the same way for the computer with which communications will take place. It is possible to confirm whether infrared communications is possible with another computer by selecting [Status] in [Start] - [Settings] - [Control Panel] - [Infrared].

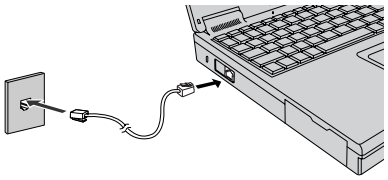
The following procedure should be used if the computer with which communications will take place is using Windows 98.

1. **Select [My Computer] - [Infrared Recipient] on both computers.**
2. **Press [Send File] on the computer that will send a file.**
3. **Select the file to be sent and then press [Open] to commence the sending of the file.**
   It will be sent to the [My Received Files] folder of the receiving computer.

NOTE

Separate application software is necessary for processing at a transfer speed of 4 Mbps or when communicating with a computer running Windows 95.

Connecting to a telephone line and settings



1 Connecting a telephone line to the internal modem

It is not possible to connect the internal modem to any of the following lines.

- Internal home phones
- Intercoms

CAUTION

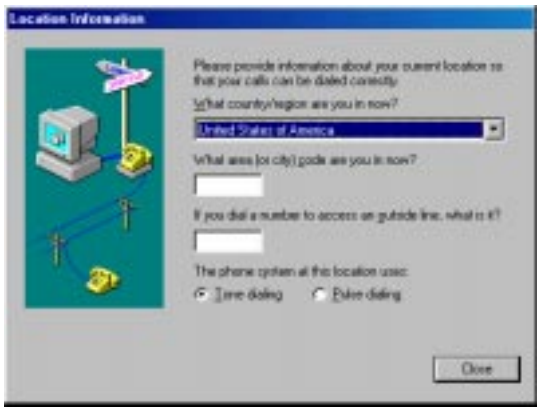
Do not use the PBX internal phone lines installed in company offices. Doing so may lead to a fire or electric shock.

NOTE

There are cases telephone construction (or installation) work will be necessary depending on the shape of the connector of the telephone line.

2 Select [Modems] in [Start] - [Settings]

Input the necessary information (items such as the phone system) and then press [Close].



Be sure to make separate settings to connect to network services like the Internet or to use e-mail.

Hard Disk Drive

To change your hard disk drive, contact Panasonic Technical Support

CAUTION

To customers:

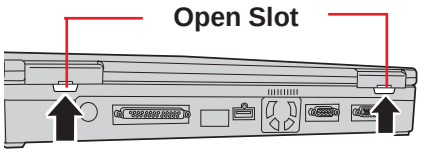
- To change your hard disk, contact Panasonic Technical Support.
- Be sure to back up all important data before the change.

To technicians (at Panasonic Technical Support):

Be careful when replacing the hard disk. The hard disk is extremely sensitive to shock. In addition, static electricity could later affect some internal components.

Installing/Removing the hard disk

(For technicians at Panasonic Technical Support)



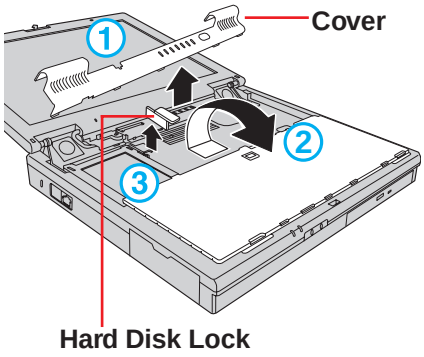
1 Power off your computer (☞ "Starting Up/Shutting Down")

Disconnect the AC adapter.
Do not shut down using the suspend or hibernation mode.

2 Place a finger on the open slot, and then gently lift the cover

3 Open the display

Open the display until it is on the same horizontal line as the keyboard as shown in the figure.



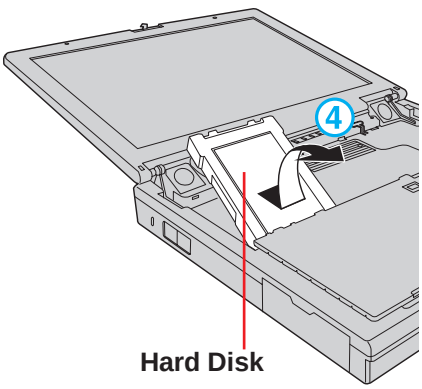
4 Removing the hard disk

① Remove the cover.

② Slide the keyboard a little towards the display and then carefully flip the keyboard over so as not to disconnect the cables of the keyboard.

③ Unlock the hard disk lock.

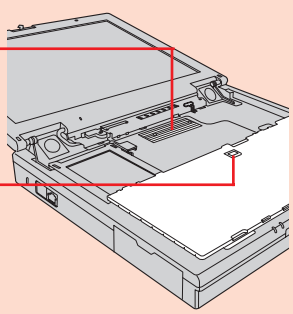
④ Slide the hard disk a little towards the front and then carefully lift it and remove it from the connector.



CAUTION

Burns can occur from the high temperature. Do not touch this part.

This part is very sharp. Take caution so an not to cut your finger.



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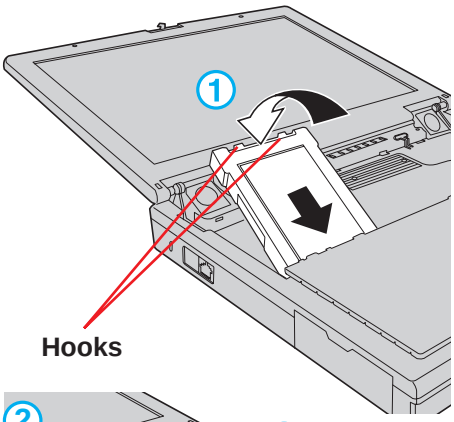
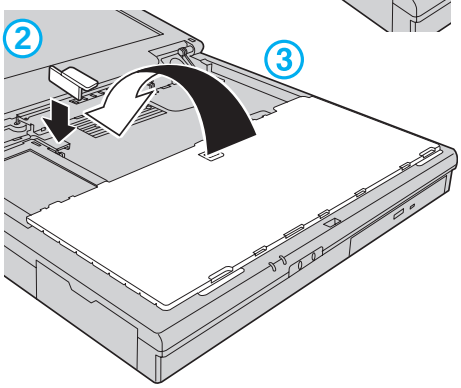


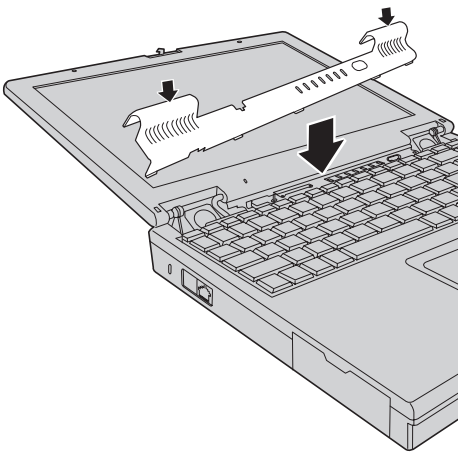


5 Inserting the hard disk

① Connect the hard disk to the connector.
Carefully insert the hard disk so that the hooks are made to firmly fit into the proper holes.

② Lock the hard disk lock.

③ Return the keyboard to its proper position.



6 Close the cover

Close the cover until it clicks into place.

Running the Setup Utility

To run the Setup Utility, you need to restart your computer. → Upon seeing this message [Press <F2> to enter SETUP] → press F2

NOTE

- Press F2 while [Press <F2> to enter SETUP] is displayed.
- The Setup Utility will not run if F2 is not pressed soon after the computer starts. In this case, you need to restart your computer.
- If [Enter Password] is displayed, enter your password.
  When entering the User Password, if the [Set User Password], [Set Supervisor Password] and [User Password Protection] have been set, [Advanced] and [Security] menus will not be displayed on the main screen.
  To display the [Advanced] and [Security] menus:
  1 Restart the computer and press F2 when [Press F2 to enter Setup] is displayed.
  2 When [Enter Password] is displayed, enter the Supervisor Password.
- For more details, on-line help is available; press F1 .

NOTE

Key Operations

F1	:To display the corresponding “help” file.
Enter	:To display sub-menu.
Esc	:To display [Exit] menu.
← →	:To move among the menus.
↑ ↓	:To move among the items.
F5 F6	:To move among the values.
F9 *	:To set default settings for the operating system.
F10	:To save the settings and exit.

* When starting up the Setup Utility with the User Password, this key is not available.

Closing the Setup Utility ☞ page 38

Main Menu

BIOS Version:	Vx.xxLxx
System Time:	[xx:xx:xx]
System Date:	[xx/xx/xxxx]
System Memory:	xxxxxKB
Primary Master:	xxxxMB
Secondary Master:	CD-ROM
Secondary Slave:	None
Numlock:	[On]
Touch Pad:	[Enable]
Speaker:	[Enable]
Display:	[External Monitor]

Parameters (_ : Default)

Numlock	On Off
Touch Pad	Disable Enable
Speaker	Disable Enable
Display	External Monitor Internal LCD Simultaneous

Advanced Menu

Serial Port :	[3F8/IRQ4]
IrDA Port:	[2F8/IRQ3/DMA3]
Parallel Port:	[378/IRQ7]
Mode:	[Bi-directional]
Sound Controller:	[Enable]
Internal Modem:	[Enable]
Legacy USB:	[Disable]

Parameters

(_ : Default)

Serial Port		Disable 3F8/IRQ4
IrDA Port		Disable 2F8/IRQ3/DMA3
Parallel Port		Disable 378/IRQ7 3BC/IRQ5*3
	Mode*1	Uni-directional Bi-directional ECP EPP*4
	DMA*1*2	DMA0 DMA1
Sound Controller		Disable Enable
Internal Modem		Disable Enable
Legacy USB		Disable Enable

*1 Setting impossible when the [Parallel Port] has been set [Disable].
*2 Setting impossible when the [Mode] has been set [Uni-directional], [Bi-directional] or [EPP].
*3 Setting impossible when the [Mode] has been set [EPP].
*4 Setting impossible when the [Parallel Port] has been set [3BC/IRQ5].

Security Menu

Boot Up Drive:	[A:/C:]
Floppy Operation:	[Enable]
▶Set Supervisor Password:	[Enter]
User Password Protection:	[No Protection]
▶Set User Password:	[Enter]
Coffee Break Password:	[Disable]

CAUTION

If starting up the Setup Utility with the User Password;

- The User Password can only be set when the Supervisor Password has been set and [User Password Protection] has been set to [No Protection].
- The Coffee Break Password can only be set when the User Password has been set. [Coffee Break Password] can not be selected when [User Password Protection] has been set to [Protected].

Parameters

(_ : Default)

Boot Up Drive	A:/C: C: CDD/A:/C:
Floppy Operation	Disable*3 Enable
Set Supervisor Password	To the sub-menu
User Password Protection*1	No Protection Protected
Set User Password*1	To the sub-menu
Coffee Break Password*2	Disable Alt + Ctrl +F9 Alt + Ctrl +F10 Alt + Ctrl +F11 Alt + Ctrl +F12

*1 Setting impossible when the Supervisor Password is not set.
*2 Setting impossible when the User Password is not set.
*3 Setting impossible when the [Boot Up Drive] has been set [A:/C:].

Power Menu

When Windows 98 is starting up, the individual timeout functions of the Setup Utility will not work.

Power Management:	[Enable (Always)]
HDD motor timeout:	1 min
ECO Mode timeout:	2 min
Sleep Switch:	[Hibernation]
Hibernation Timeout: *	[4 min]
Fn+F7/Fn+F10 key	[Enable]
CD-ROM Drive Speed:	[High]

* The [Suspend Timeout] item will be displayed when [Sleep Switch] is set to [Suspend]. Both [Hibernation Timeout] and [Suspend Timeout] may not be displayed when [Sleep Switch] is set to [No Action].

Parameters

(__ : Default)

Power Management	Disable Enable (Battery) Enable (Always)
HDD motor timeout*1	Automatically set through setting of Power Management Mode (1 min / Never)
ECO Mode timeout*1	Automatically set through setting of Power Management Mode (1 min / 2 min / Never)
Sleep Switch	No Action Suspend*2 Hibernation
Hibernation Timeout*1*4 Suspend*2 Timeout*1*4	Never*3 4 min 16 min
Fn+F7/Fn+F10 Key	Disable Enable
CD-ROM Drive Speed	High Low

Power Management Modes

Power Management / Functions automatically set	Enable (Battery)	Enable (Always) (Setting at the time of purchase)	Disable
HDD motor timeout	1 min	1 min	Never
ECO Mode timeout	2 min	2 min	Never
Power Conservation (AC Adapter Connected)	Enable	Disable	Disable

*1 Does not operate for Windows 98.
*2 With Windows 98, the "Suspend" is called "Standby".
*3 Set automatically when [Sleep Switch] is set to [No Action].
*4 This item is set to [Never] at the time of purchase.

Exit Menu

Save Values & Exit
Exit Without Saving Changes
Get Default Values
Load Previous Values
Save Current Values

NOTE

If the Supervisor Password or User Password has been set, the password must be entered before Windows can start.

Parameters

Save Values & Exit	Exit the Setup Utility and save your changes to CMOS.
Exit Without Saving Changes	Exit the Setup Utility without saving your changes to CMOS.
Get Default Values*	Set the default settings system.
Load Previous Values	Load previous values from CMOS for all Setup items.
Save Current Values	Save your changes to CMOS.

* This item may not be displayed when starting up the Setup Utility with the User Password.

Network / Communication Software

- The network connection may be severed when entering the ECO mode and suspend (hibernation) mode. When network or communication software is to be used, set [System standby], [Turn off monitor] and [Turn off hard disks](in [Start] - [Settings] - [Control Panel] - [Power Management]) to [Never].

- When the power saving function is running, communications software may malfunction. For example, communications may be halted if the suspend (hibernation) mode is activated. The computer must be restarted if one of these modes is entered during data communications.
  Be sure that the computer enters the ECO mode or suspend (hibernation) mode after the communications software is closed.

Using the ZV Card

1. Double click on the task bar.
2. Select [Option] – [Properties].
3. Check [Playback], and add the check mark ✓ for [ZV Port].
4. Press [OK].
5. Delete the check mark ✓ for [Mute] at [ZV Port].
6. Click ☒ in the top of right corner of the window.

Hard Disk

When application software or an operating system (OS) incompatible with FAT32 is to be used, it is necessary to change FAT32 to FAT16, after saving all necessary files, by using the FDISK command. However, we cannot recommend this when the user is unfamiliar with the OS.

NOTE

The FAT16 file system can only be set up to 2GB for one partition.

List of Error Codes

The following is a list of the messages that BIOS can display. Most of them occur during POST. Some of them display information about a hardware device, e.g., the amount of memory installed. Others may indicate a problem with a device, such as the way it has been configured. Following the list are explanations of the messages and remedies for reported problems.
If your system displays one of except the messages marked below with an asterisk (*), write down the message and contact Panasonic Technical Support. If your system fails after you make changes in the Setup menus, reset the computer, enter Setup and install Setup defaults or correct the error.

0200 Failure Fixed Disk
Fixed disk in not working or not configured properly. Check to see if fixed disk is attached properly. Run Setup. Find out if the fixed-disk type is correctly identified.

0210 Stuck key
Stuck key on keyboard.

0211 Keyboard error
Keyboard not working.

0212 Keyboard Controller Failed
Keyboard controller failed test. May require replacing keyboard controller.

0213 Keyboard locked - Unlock key switch
Unlock the system to proceed.

0220 Monitor type does not match CMOS - Run SETUP
Monitor type not correctly identified in Setup.

0230 Shadow RAM Failed at offset : *nnnn*
Shadow RAM failed at offset *nnnn* of the 64k block at which the error was detected.

0231 System RAM Failed at offset : *nnnn*
System RAM failed at offset *nnnn* of in the 64k block at which the error was detected.

0232 Extended RAM Failed at offset : *nnnn*
Extended memory not working or not configured properly at offset *nnnn*.

0250 System battery is dead - Replace and run SETUP
The CMOS clock battery indicator shows the battery is dead. Replace the battery and run Setup to reconfigure the system.

0251* System CMOS checksum bad - Default configuration used
System CMOS has been corrupted or modified incorrectly, perhaps by an application program that changes data stored in CMOS. The BIOS installed Default SETUP Values. If you do not want these values, enter Setup and enter your own values. If the error persists, check the system battery or contact Panasonic Technical Support.

0260 System timer error
The timer test failed. Requires repair of system board.

0270 Real time clock error
Real-time clock fails BIOS test. May require board repair.

0280* Previous boot incomplete - Default configuration used
Previous POST did not complete successfully. POST loads default values and offers to run Setup. If the failure was caused by incorrect values and they are not corrected, the next boot will likely fail. On systems with control of **wait states**, improper Setup settings can also terminate POST and cause this error on the next boot. Run Setup and verify that the wait-state configuration is correct. This error is cleared the next time the system is booted.

0281 Memory Size found by POST differed from CMOS
Memory size found by POST differed from CMOS.

02B0 Diskette drive A error

02B1 Diskette drive B error
Drive A: or B: is present but fails the BIOS POST diskette tests. Check to see that the drive is defined with the proper diskette type in Setup and that the diskette drive is attached correctly.

02B2 Incorrect Drive A type - run SETUP
Type of floppy drive A: not correctly identified in Setup.

02B3 Incorrect Drive B type - run SETUP
Type of floppy drive B: not correctly identified in Setup.

02D0 System cache error - Cache disabled
RAM cache failed and BIOS disabled the cache. On older boards, check the cache jumpers. You may have to replace the cache. See Panasonic Technical Support. A disabled cache slows system performance considerably.

02F0: CPU ID:
CPU socket number for Multi-Processor error.

02F4: EISA CMOS not writable
ServerBIOS2 test error: Cannot write to EISA CMOS.

02F5: DMA Test Failed
ServerBIOS2 test error: Cannot write to extended DMA (Direct Memory Access) registers.

02F6: Software NMI Failed
ServerBIOS2 test error: Cannot generate software NMI (Non-Maskable Interrupt).

02F7: Fail - Safe Timer NMI Failed
ServerBIOS2 test error: Fail-Safe Timer takes too long.

***device* address Conflict**
Address conflict for specified *device*.

Allocation Error for: *device*
Run ISA or EISA Configuration Utility to resolve resource conflict for the specified *device*.

CD ROM Drive
CD ROM Drive identified.

Entering SETUP ...
Starting Setup Utility.

Failing Bits : *nnnn*
The hex number *nnnn* is a map of the bits at the RAM address, which failed the memory test. Each 1 (one) in the map indicates a failed bit. See error 230,231 or 232 for offset address of the failure in System, Extended or Shadow memory.

Fixed Disk *n*
Fixed disk *n* (0-3) identified.

Invalid System Configuration Data
Problem with NVRAM (CMOS) data.

I/O device IRQ conflict
I/O device IRQ conflict error.

PS/2 Mouse Boot Summary Screen:
PS/2 Mouse installed.

***nnnn* kB Extended RAM Passed**
Where *nnnn* is the amount of RAM in kilobytes successfully tested.

***nnnn* Cache SRAM Passed**
Where *nnnn* is the amount of system cache in kilobytes successfully tested.

***nnnn* kB Shadow RAM Passed**
Where *nnnn* is the amount of shadow RAM in kilobytes successfully tested.

***nnnn* kB System RAM Passed**
Where *nnnn* is the amount of system RAM in kilobytes successfully tested.

Operating system not found
Operating system cannot be located on either drive A: or drive C:. Enter Setup and see if fixed disk and drive A: are properly identified.

Parity Check 1 *nnnn*
Parity error found in the system bus. BIOS attempts to locate the address and display it on the screen. If it cannot locate the address, it displays ????. Parity is a method for checking errors in binary data. A parity error indicates that some data has been corrupted.

Parity Check 2 *nnnn*
Parity error found in the I/O bus. BIOS attempts to locate the address and display it on the screen. If it cannot locate the address, it displays ????.

Press <F1> to resume, <F2> to Setup, <F3> for previous
Displayed after any recoverable error message. Press <F1> to start the boot process or <F2> to enter a Setup and change the settings. Press <F3> to display the previous screen (usually an initialization error of an **Option ROM**, I.e., an add-on card). Write down and follow the information shown on the screen.

Press <F2> to enter Setup
Optional message displayed during POST. Can be turned off in Setup.

PS/2 Mouse:
PS/2 mouse identified.

System BIOS shadowed
System BIOS copied to shadow RAM.

UMB upper limit segment address : *nnnn*
Displays the address *nnnn* of the upper limit of **Upper memory Blocks**, indicating released segments of the BIOS which can be reclaimed by a virtual memory manager.

Video BIOS shadowed
Video BIOS successfully copied to shadow RAM.

DMI Viewer

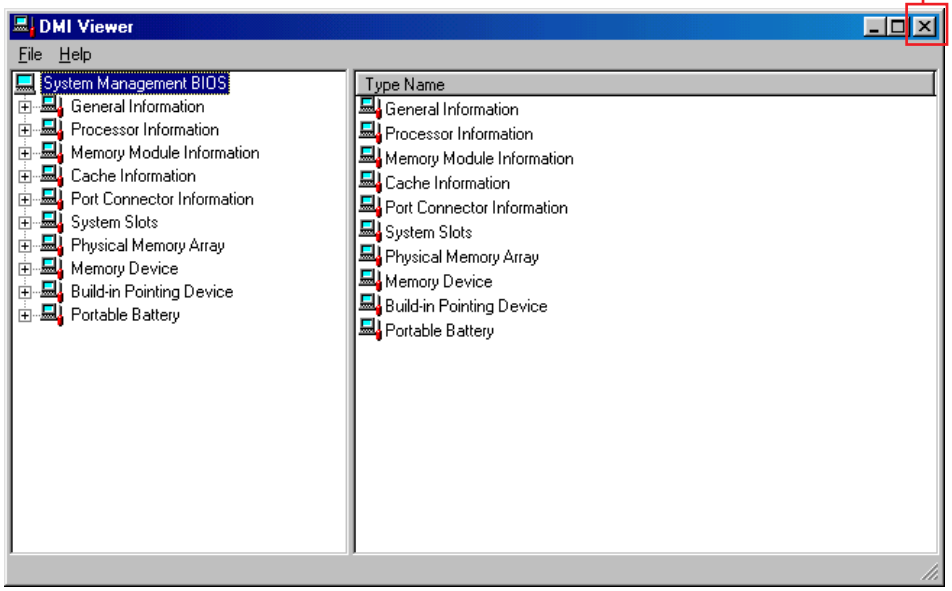
This computer conforms to the specifications of the Desktop Management Interface (DMI). The DMI Viewer can be used when you want to know information on the internal systems this computer supports, starting with the CPU and memory.

Running DMI Viewer

Select [DMI Viewer] from [Start] - [Programs] - [Panasonic].

The screen shown below is displayed.
When you click on an item, detailed information on that item will be displayed.

Click to close the DMI Viewer



Saving information to a file

Displayed information can be saved to a text file (.txt). Run the DMI Viewer and display the information you wish to save.

1 ● **To save the item that is displayed**
Select [Save Selected Data] from [File] menu.

● **To save all items**
Select [Save All Data] from [File] menu.

2 **Input the file name (and select the folder), then press [Save]**

Dealing With Problems

When a problem occurs, please refer to this page. If you still cannot troubleshoot the problem, please contact Panasonic Technical Support.

Starting Up

The power indicator or battery indicator is not lit	● Check the cable connection for the AC adapter. ● Check to see if a fully charged battery is properly installed. ● Remove the battery pack and disconnect the AC adapter, then connect them again.
or **is displayed**	Please input your password. If you have forgotten it, contact Panasonic Technical Support.
[POST Startup Error(s)] is displayed	☞ page 40
The pre-memory count, Windows startup, or an operation is extremely slow	Press F9 in the Setup Utility (☞ page 33). This will restore the Setup Utility's settings to their default values (except the password settings). Then, the Setup Utility must be run once again for you to input the appropriate operating environment settings. (The processing speed depends on the application software used, so this operation may not cause the processing speed to increase.)
The date and time are incorrect	You can set the date and time through [Date/Time] in [Start] - [Settings] - [Control Panel]. If you continue to experience problems, the internal battery maintaining the clock may need to be replaced. Please contact Panasonic Technical Support.
When the previous item is not the cause	● Press F9 in the Setup Utility (☞ page 33). This will restore the Setup Utility's settings to their default values (except the password settings). ● Try removing all peripheral devices. ● In the MS-DOS mode, run SCANDISK to check the hard disk. ● At start-up, press Ctrl to operate the computer in the Safe mode.

Battery Indicator

The red indicator lights. Repeated beeping sound while the computer is in use.	The battery level is low. Save your data and power off your computer. After connecting the AC adapter or replacing the battery pack with a fully charged one, turn your computer on.
The red indicator blinks	● The battery pack or recharging function may be defective. Quickly remove the battery pack and disconnect the AC adapter, then connect them again. ● If the problem persists, contact Panasonic Technical Support.
After the AC adapter is connected, the orange indicator blinks five times	Unable to charge because of an improper temperature range. (☞ 📖 "Precautions")

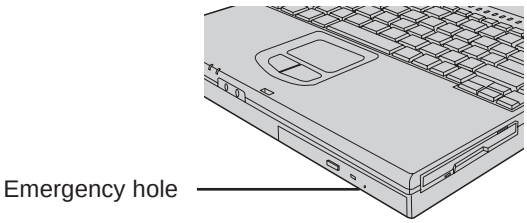
Display

No display after powering on	● At the time of purchase, the display setting is preset for an external display. If you connect an external display, the screen is displayed on the external display. ● When there is no display to an external display, • Check your cable connection to the external display. • Confirm your display is powered on. • Check the settings for your external display. ● Try changing the display by pressing Fn + F3 . ● When displaying only through an external display, if the computer is shut down by using the suspend or hibernation function, there will be no display on the LCD unless the external display is connected when operations are resumed. In this case, connect the external display.
The power has not been cut, but after a certain period of time, there is no display	● Has the computer been set to the power-saving mode? To resume operation of your computer from ECO mode, press any key. ● To save power, your computer may have automatically entered the suspend or hibernation mode. ● The coffee break password may have been set. In such cases, perform the following steps. *1* Press any key. *2* If the display remains dark, enter the Coffee break Password and press Enter . *3* If the display continues to remain dark, press Enter again.
The resolution of the display cannot be changed	Set [None] for [Wallpaper] in [Start] - [Settings] - [Control Panel] - [Display] - [Background], and then press [OK]. Then, once again try changing the resolution. After the change, be sure to restart the computer.
An afterimage appears	If an image is displayed for a prolonged period of time, an afterimage may appear. This is not a malfunction. The afterimage will disappear when a different screen is displayed.
The motion of the mouse cursor is not smooth	Select [Start] - [Settings] - [Control Panel] - [Mouse] - [Motion] and add the check mark ✓ for [Show trails].
The cursor does not move in scrolling area of the touch pad	When the Microsoft® IntelliMouse™ wheel mode or the original mode is set for the touch pad, only scroll operations are possible for the right part or bottom part of the touch pad. In this case, cursor operations are possible by using the work surface excluding the right part or bottom part. When no mode is set, the entire surface of the touch pad can be used for cursor operations.

Disk Operations

Cannot read/write to a floppy disk	● Has the floppy disk been correctly inserted? ● Has the floppy disk been correctly formatted? ● Has the Setup Utility been used to set [Floppy Operation] to [Enable]? (☞ page 33) ● Your floppy disk content may be corrupted.
Unable to write to a floppy disk	Is the floppy disk write-protected?
How to format a floppy disk is unclear	Select [Format] in [My Computer] - [3 1/2 Floppy (A:)] - [File]. After confirming the disk volume and format type, start formatting.
Unable to read/write to the hard disk	● Your drive or file may not have been properly set. ● Check to see if the hard disk is full. If it is full, delete unnecessary files. ● Your hard disk content may be corrupted. Contact Panasonic Technical Support.
When the previous item is not the cause	Try testing another drive or media.

Disk Operations

Trouble has occurred with the CD	You may need to clean the lens or CD.
When the previous item is not the cause	Try testing another driver or media.
The access lamp ( ) does not light	Is the CD loaded on the tray correctly?
Cannot play CD or read data from it	Is the CD bent, scratched, or dirty?
Cannot eject CD	Is the computer powered on? To remove a CD when the computer is powered off, insert a sharp object such as the bent-out tip of a paper clip into the emergency hole. Pushing it completely to the end will free the tray so that it can be pulled out.  Emergency hole
A blue background appears on the screen with the MPEG image	Did you open the CD-ROM drive or remove the MPEG CD while it was operating? Re-insert the MPEG CD and close the CD-ROM drive. Press **Enter** .
The CD-ROM drive vibrates a lot	Is the CD bent labeled?

Character Input

Unable to input anything but numerals	If **NumLk** and **Key Pad** are on, the Numeric Key Pad is ON. To switch it OFF, press **Fn** + **Key Pad** .
Only capital letters are being input	If **CapsLock** is on, the Caps Lock function is ON. To switch it OFF, press **Caps Lock** .
How to input European characters (ß, à, ç) or symbols is unclear	Select [Start] - [Programs] - [Accessories] - [System Tools] - [Character Map]. The Character Map will be displayed. Point to the desired font name and select it.

Setup Utility

[Enter Password] is displayed	Enter the User Password or Supervisor Password. If you have forgotten it, contact Panasonic Technical Support.
[Advanced] menu can not be registered	Restart the Setup Utility with the Supervisor Password.
All or some items in [Security] menu can not be registered	Restart the Setup Utility with the Supervisor Password.
F9 does not work	Restart the Setup Utility with the Supervisor Password.
[Coffee Break Password] cannot be selected	You need to set the User Password.

Application Software

Computer hangs	● Press Ctrl + Alt + Del to reboot the computer. ● After cutting the power by pressing the sleep switch for more than four seconds, slide the power switch to power on and open the application again. If the program no longer works normally, go to [Start] - [Settings] - [Control Panel] - [Add/Remove Programs] to delete the program. Then, try installing the program once again.

Network

Unable to connect to a network	When using the computer as a network computer, some additional settings may have to be made depending on the usage conditions. We recommend asking your system administrator or the person in charge of the network.

Sound

The sound is not heard	● Try changing the mute by pressing Fn + F4 . ● Has the Setup Utility been used to set [Speaker] to [Disable]?(☞ page 35)

Unusual Sound

The computer produces a strange sound	● If the computer enters the ECO mode or the LCD is closed while the computer is making a sound, the computer may produce a strange sound, but this does not indicate a problem. ● If the computer has not been used for a long period of time, it may produce an unusual sound at start up. The sound may continue for a short period of time, but if the computer starts up in a normal manner, then the problem is not serious. If, however, the computer fails to start up, contact Panasonic Technical Support.

Timeout Function

The timeout functions do not work	If the Panasonic Battery Monitor is being displayed, please close it.

Connecting Peripherals

Your peripheral does not work (An error occurs while installing the driver)	You need to use drivers conforming to Windows 98 Version 4.10.1998. Some earlier drivers will no longer work. For more information, please ask the manufacturer of the driver in question.
Unable to print	● Check the computer-printer connection. ● Make sure the printer is on. ● Make sure the printer is in the online state. ● Make sure paper is in the printer tray and there is no paper jam. ● Has the Setup Utility been used to set [Parallel Port] to, [378/IRQ7] or [3BC/IRQ5]?
The cursor does not move from mouse operations	● The Coffee break Password may be set; check if is displayed. If this is the case, input the Coffee break Password. ● Check your mouse connection, then reboot the computer from the keyboard. From the keyboard, you may choose to press down on , then select [Shut Down].
The device connected to the serial port does not work	● Check the connection. ● Confirm that the device driver for the serial port works. Please refer to the reference manual of the device. ● Confirm that two mouse devices are not connected, one through the external keyboard/mouse port and the other through the serial port. ● Try setting [Touch Pad] to disable in the Setup Utility. ● Has the Setup Utility been used to set [Serial Port] to or [3F8/IRQ4]?
External mouse or trackball connected to the external keyboard/ mouse port does not work	● Try setting [Touch Pad] to disable in the Setup Utility. ● In some circumstances, if a PS/2 external mouse with a serial interface conversion function is connected to the port, it may not operate normally. Try connecting it to the serial port. ● If a switch is made to the Hand Written mode in Panasonic Hand Writing, any external mouse or trackball connecting to the external keyboard/mouse port will not operate. Reconnect the device after quitting the Hand Written mode. If the device still does not work, try restarting the computer.
A PC Card does not work	● Make sure the card is properly inserted. ● Confirm that the card conforms to the PC Card Standard. ● Note that after a driver is installed, the computer must be rebooted. ● Check that the proper port settings have been made. ● Read the PC Card's manual. Or, you may need to call the manufacturer of the PC Card.
You do not know the available RAM module	☞ page 21
The RAM module has not been recognized	● Make sure the RAM module has been properly inserted. ● Use the RAM module that supports the recommended specifications.
The address map for IRQ, I/O port address, etc. is unclear	Check the address map by going to [View Resources] in [Start] - [Settings] - [Control Panel] - [System] - [Device Manager] - [Computer] - [Properties].
A USB device does not work	● Make sure a driver is installed. ● Contact the manufacturer of the product.

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